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Appl. No.: 10/527,214

Amdt. Dated January 5, 2007

Response to Office Action Mailed October 6, 2006

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in this application.

1-9. (Cancelled).

10. (Currently Amended) An optical modulator comprising a substrate consisting of a material having an electrooptic effect, an optical waveguide provided ~~on~~ in said substrate, a control ~~electrodes~~ electrode for controlling a phase of light being guided through said optical waveguide, and

a recess in a surface of said substrate, ~~one of said control electrodes~~ electrode being formed on said recess, wherein said control electrode is disposed continuously on said recess and adjacent non-recess portions of said surface of said substrate at both sides of said recess.

the control electrode formed on said recess is provided with a stress relaxing means, and said stress relaxing means comprises configuration of a thickness of said control electrode on the recess as thinner than a depth of the recess.

11. (Currently Amended) ~~The~~ An optical modulator ~~as claimed in Claim 10~~ comprising

a substrate consisting of a material having an electrooptic effect,

an optical waveguide provided in said substrate,
a control electrode for controlling a phase of light being guided through said optical waveguide, and
a recess in a surface of said substrate, said control electrode being formed on said recess,
wherein said control electrode is disposed continuously on said recess and adjacent non-recess portions of said surface of said substrate at both sides of said recess,
the control electrode formed on said recess is provided with a stress relaxing means, and
wherein said stress relaxing means comprises configuration of a thickness of said control electrode on the recess as thinner than a thickness of said control electrodes electrode on said non-recess portions of said surface of said substrate.

12. (Cancelled).

13. (Currently Amended) An optical modulator as claimed in Claim 10, wherein comprising

a substrate consisting of a material having an electrooptic effect,
an optical waveguide provided in said substrate,
a control electrode for controlling a phase of light being guided through said optical waveguide, and
a recess in a surface of said substrate, said control electrode being formed on said recess,
wherein the control electrode formed on said recess is provided with a stress relaxing means, and

said stress relaxing means configures a percentage of voids of said control electrode on the recess in a range of 10 to 90 percent.

14. (Currently Amended) The optical modulator as claimed in Claim ~~11~~ 10, wherein a thickness of said control electrode on the recess is 30000 to 500Å.

15. (Cancelled).

16. (Previously Presented) The optical modulator as claimed in Claim 10, wherein said stress relaxing means comprises formation of said control electrode on the recess in a shape of a stripe or of a lattice.

17. (Currently Amended) ~~The~~ An optical modulator ~~as claimed in Claim 10, wherein~~ comprising

a substrate consisting of a material having an electrooptic effect,

an optical waveguide provided in said substrate,

a control electrode for controlling a phase of light being guided through said optical waveguide, and

a recess in a surface of said substrate, said control electrode being formed on said recess, wherein the control electrode formed on said recess is provided with a stress relaxing means, and

said stress relaxing means comprises configuration of said control electrode on the recess as a thin conducting line for connecting the control ~~electrodes~~ electrode formed on said adjacent non-recess portions of said surface of said substrate ~~next to~~ at both sides of said recess.

18. (Previously Presented) The optical modulator as claimed in Claim 10, wherein said substrate comprises a direction of a crystal axis capable of changing a refractive index in a direction vertical to the substrate surface by electrooptic effect.

19. (Previously Presented) The optical modulator as claimed in Claim 10, wherein said control electrode provided with said stress relaxing means is a grounding electrode.

20. (Cancelled).

21. (Currently Amended) The optical modulator as claimed in Claim ~~14~~ 10, wherein said stress relaxing means configures a percentage of voids of said control electrode on the recess in a range of 10 to 90 percent.

22. (Cancelled).

23. (Currently Amended) The optical modulator as claimed in Claim ~~12~~ 11, wherein a thickness of said control electrode on the recess is 30000 to 500Å.

24. (Previously Presented) The optical modulator as claimed in Claim 13, wherein a thickness of said control electrode on the recess is 30000 to 500Å.

25. (Previously Presented) The optical modulator as claimed in Claim 11, wherein said stress relaxing means comprises formation of said control electrode on the recess in a shape of a stripe or of a lattice.

26. (Cancelled).

27. (Previously Presented) The optical modulator as claimed in Claim 13, wherein said stress relaxing means comprises formation of said control electrode on the recess in a shape of a stripe or of a lattice.

28. (Cancelled).

29. (Cancelled).

30. (Previously Presented) The optical modulator as claimed in Claim 11, wherein said substrate comprises a direction of a crystal axis capable of changing a refractive index in a direction vertical to the substrate surface by electrooptic effect.

31. (Cancelled).

32. (Previously Presented) The optical modulator as claimed in Claim 13, wherein said substrate comprises a direction of a crystal axis capable of changing a refractive index in a direction vertical to the substrate surface by electrooptic effect.

33. (Cancelled).

34. (Cancelled).

35. (Previously Presented) The optical modulator as claimed in Claim 11, wherein said control electrode provided with said stress relaxing means is a grounding electrode.

36. (Currently Amended) The optical modulator as claimed in Claim ~~12~~ 17, wherein said control electrode provided with said stress relaxing means is a grounding electrode.

37. (Previously Presented) The optical modulator as claimed in Claim 13, wherein said control electrode provided with said stress relaxing means is a grounding electrode.

38. (New) The optical modulator as claimed in claim 10, wherein said stress relaxing means comprises configuration of a thickness of said control electrode on the recess as thinner than a thickness of said control electrode on said non-recess portions of said surface of said substrate.

39. (New) The optical modulator as claimed in claim 38, wherein said stress relaxing means configures a percentage of voids of said control electrode on the recess in a range of 10 to 90 percent